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ABSTRACT

The results of the classroom observations of students during compensatory reading instruction are described. Sixty-three second-, fourth-, and sixth-grade classrooms across the country were observed using the Student Observation Scale. The scale is two-dimensional enabling an observer to code simultaneously two different aspects of an observed activity. One dimension, Group, contained four categories while the other dimension, Content, contained 12 categories. Therefore, the scale spanned 48 two-dimensional categories. Results are reported in terms of percent of time students spent in each of the categories of the Student Observation Scale. (Author)

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The Classroom Behavior of Students During Compensatory Reading Instruction

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The Classroom Behavior of Students During Compensatory Reading Instruction*

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This report describes the results of the classroom observations of students during compensatory reading instruction.** The Student Observation Scale--Reading was designed to describe the major types of interaction during reading instruction so that a systematic study of students' activities during compensatory reading instruction could be undertaken.

From the student's point of view, what is important to his development in reading ability is not only the activities which the teacher is performing, but also those activities which become his personal experiences; in short, those stimuli to which the student is attending in the classroom become the focus of his particular learning experiences. For example, if the teacher is presenting an explanation to the class dealing with the comprehension of a paragraph, while several of the students are working math problems at their desks, it is the mathematics problems that become the focus of the learning behavior of these students, and not the teacher's comprehension activities.

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SELECTION OF THE PROGRAMS TO BE OBSERVED

In July 1971, Educational Testing Service was requested by the U.S. Office of Education to develop design and analysis plans for a study of compensatory reading programs in U.S. public schools. A three phase study was conceptualized beginning with a Spring 1972 questionnaire survey of compensatory reading programs offered in grades two, four, and six of the U.S. public schools. In Phase II of the project, data descriptive of compensatory and non-compensatory reading programs were again obtained via questionnaires similar to those administered in the Spring of 1972. In addition, Fall 1972 and Spring 1973 student scores on measures of reading achievement and attitudes were obtained. The study of the classroom behavior of students, described in this report, was embedded in this second phase of the Compensatory Reading Project. As part of the Phase II study a small group of compensatory reading programs were selected which were considered innovative by persons knowledgeable in the field of reading education. Reading consultants and members of the Advisory Board of the Compensatory Reading Project were requested to identify specific compensatory reading programs they considered innovative, and to submit names of other reading experts who were qualified to do the same. In addition, testing directors of several large city school systems were asked to nominate innovative programs. Finally, the U.S. Office of Education selected a small number of states whose Directors of Title I Programs were requested to submit nominations. It was decided that programs would be selected in order to obtain a wide variety of instructional characteristics. Program effectiveness was not a criterion of selection, since in most cases no adequate data by which to judge effectiveness were available. Phone interviews and site visits were conducted and the end result of this sequence of nomination, phone interview, and site visit was the

selection of 34 schools in 21 cities, in which a total of 156 classes were observed. Sixty-seven second, fourth, and sixth grade classrooms across the country from 13 schools in 10 cities were selected to be observed using the Student Observation Scale--Reading described in this report.

Table 1 presents the reading programs found in each school and the number of classrooms observed in each school.

DEVELOPMENT OF THE OBSERVATION SCALE

The categories of the Student Observation Scale--Reading were designed to apply to student reading activities whether or not these activities took place in compensatory reading classes. The members of the research team visited a number of second, fourth, and sixth grade reading classes and kept a log of the verbal and non-verbal activities which took place during these visits. Each activity was then written on a separate index card so that these cards could be used later to aid in classifying the activities into categories of similar behaviors. The resulting categories were pilot tested and revised until the Student Observation Scale--Reading finally included two dimensions: (1) the Group of Instruction, and (2) the Content of Instruction.

The Group dimension described the type of group the student was paying attention to. The Content dimension described the kind or type of activity being performed by the student. The main advantage of using this two-dimensional coding scale was that an observer could code simultaneously both the Group and the Content of an activity being observed in the classroom.

Table 1

SELECTION OF COMPENSATORY READING CLASSES BY PROGRAM FOR STUDENT OBSERVATION

Type of Reading Program	Number of Classes Selected to be Observed			Number of Classes Observed on Nine Separate Occasions		
	Grade 2	Grade 4	Grade 6	Grade 2	Grade 4	Grade 6
Degateno Reading Program--Words in Color	3	3	2	3	3	2
Title I	3	3	0	3	3	0
Distar Open Court	7	0	0	7	0	0
Distar Houghton-Mifflin	3	3	3	3	3	3
Alpha One	2	0	0	2	0	0
Reading Tutorial Program	2	3	0	2	3	0
Sullivan Scott-Foresman	4	2	3	3	2	3
Special Reading Program	6	2	0	6	2	0
Exemplary Center of Reading Instruction Project to Improve Reading Performance in Utah Schools	7	2	0	7	2	0
Exemplary Center of Reading Instruction Project to Improve Reading Performance in Utah Schools	4*	0	0	1*	0	0
Totals	41	18	8	37	18	8

*Four classes were combined into one class.

This observation instrument was designed to be used with a stopwatch so that student activities in the classroom could be coded in fixed-time intervals. The observation procedure required the observer to watch a different student during each 15-second interval and to decide what activity each student was engaged in as the sweep-hand of the stopwatch completed each 15-second interval. A 15-second interval was selected after pilot tests indicated that the observers required this much time in order to be able to code reliably a different student during each time interval. During each visit in every classroom the observer coded the behavior of a different student every 15 seconds until the whole class had been observed at which time the procedure was repeated until a total of 15 minutes of coding by the observer had taken place.

All of the student observers used a coding form which included the Group categories denoted by four columns (Teacher, Other Adult, Peer, Alone) and the twelve Content categories denoted by the numbers 1-12. The observed activity was represented by placing the number of the Content category which described the observed activity into the appropriate Group column on the coding sheet. A sample coding sheet is presented in Table 2.

DEFINITIONS OF THE CATEGORIES USED TO CODE STUDENT BEHAVIOR

Brief definitions and examples of each of the coding categories are presented in the following section of this report, and more complete descriptions are available elsewhere (Quirk, Weinberg, & Nalin, 1973).

The Group of Instruction

The Group of Instruction refers to the type of classroom setting or group in which the activities of the student being observed take place. The four Groups of Instruction are: Teacher, Other Adult, Peer, and Alone.

Table 2

Coding Sheet for Coding Group - Content Combination

Name of Observer _____

Date _____

Teacher _____

Time Start _____ Finish _____

Third of Class 1 2 3 SP

School _____

Grade _____

City _____

Content

Reading	Other Instructional	Other
1. Comp.	5. Sp.	10. Pos. Fdbk.
2. Pron. & Wd. Rec.	6. Writing	11. Neg. Fdbk.
3. Lang. Struc.	7. List. Inst.	12. Ex.
4. Rdg. Silently	8. Non-Rdg. Inst.	
	9. Man. Inst.	

Group

Teacher	Other Adult	Peer	Alone

The "Teacher" Group of Instruction refers to those instances in which the student being observed is paying attention to the teacher or is paying attention to a group that includes the teacher. (Example: The student being observed is watching the teacher who is reading a story aloud to the class.)

The "Other Adult" Group of Instruction refers to those instances in which the student being observed is paying attention either to an adult other than the teacher or to a group that contains an adult other than the teacher. (Example: An aide is telling the student being observed how to spell the word trough.)

The "Peer" Group of Instruction refers to those instances in which the student being observed is paying attention to a group which contains his peer or peers, but does not contain either the teacher or an other adult. (Example: The student being observed is reading a story aloud to another student.)

The "Alone" Group of Instruction refers to those instances in which the student being observed is not paying attention to any group, teacher, other adult, or peer in the classroom, but is paying attention to his own thoughts, to his own set of materials, or to a machine when he is by himself. (Example: The student being observed is doing spelling exercises alone at his desk.)

Whenever the student being observed was paying attention to a group that contained both the teacher and an other adult, the observers were trained to code this situation as the Teacher Group even if the other adult was speaking. When the student being observed was paying attention to the observer the observers were instructed to code these instances as Alone.

The Content of Instruction

The Content of Instruction refers to the type of instructional or non-instructional activity in which the student being observed is engaged. There were twelve categories used to describe the Content of Instruction. Four of these categories are related specifically to reading activities: Comprehension, Pronunciation and Word Recognition, Language Structure, and Reading Silently. For the purposes of this observation instrument, reading activities referred only to those activities in the classroom which included a printed stimulus in the form of letters of the alphabet or combinations of letters, words, phrases, sentences, and paragraphs.

Eight other categories were used to describe other instructional activities: Spelling, Writing, Non-Reading Instruction, Listening Instruction, Management Instruction, Positive Feedback, Negative Feedback, and Extraneous. Brief definitions and one example of each of the Content categories will now be presented.

Category 1: Comprehension. This category refers to those instances in which the teacher, students, machines, or other persons in the classroom demonstrate understanding of what the students have read. It includes questions, statements, or actions such as defining a word, giving the meaning of a sentence, or interpreting a story. (Example: The student being observed says, "In that story, Bob liked the lion.")

Category 2: Pronunciation and Word Recognition. This category refers to those instances when some person or a machine is pronouncing aloud letter combinations, words, phrases, sentences, or stories which the student being observed can see or is reading. This category also includes phonic rules which deal with pronunciation symbols and rules for vowel, consonant, and combination

sounds. In addition, this category includes non-verbal actions such as pointing, writing, coloring, and the like that persons or machines in the classroom use to indicate questions or answers to Pronunciation and Word Recognition problems. (Example: The student being observed asks, "How do you pronounce this word?")

Category 3: Language Structure. This category refers to the structure of a word, phrase, sentence, or paragraph where the student being observed has read or seen the printed material being discussed. It involves punctuation, grammatical construction, and syllabification when it is done for the purpose of hyphenating a word. (Example: The teacher asks the student who is being observed, "What kind of punctuation follows a question?")

Category 4: Reading Silently. This category refers to all instances in which the student being observed is reading silently to himself or is silently looking at printed material. (Example: The student being observed is silently reading a story at his desk.)

Category 5: Spelling. This category refers to those instances in which words or parts of words are formed one letter at a time, aloud, to oneself, on the board, or on a sheet of paper. It also includes activities which have to do with individual letters of the alphabet and alphabetizing activities. The dictation of words or sentences by the teacher or students so that the students can write out these words are also included as spelling activities. (Example: The student being observed asks, "How do you spell the word pluck?")

Category 6: Writing. This category refers to those specific activities in which the student being observed is creating or composing his own original work in terms of words, phrases, or sentences. This category does not include

copying words, phrases, or sentences from the board or from a book. This category also refers to writing activities such as the teacher writing a story which the student being observed is making up and dictating to her. (Example: The student being observed is writing a story about what he did last summer.)

Category 7: Listening Instruction. This category includes questions, statements, and actions which refer to reading material that has been or will be read to the student being observed, but which the student himself has not seen or read. Also included in this category are instances in which some person is reading aloud to the student being observed when the material that is being read cannot be seen by the student. (Example: The student being observed listens as the teacher reads him a story. The student does not have any books open in front of him.)

Category 8: Non-Reading Instruction. This category includes those activities which are instructional in content but which are not specific reading activities or activities which refer to material that has been read to the students. (Example: The teacher says to the student being observed, "See the new growth on this piece of moss that I brought in to show you.")

Category 9: Management Instruction. This category includes those instances in which the student being observed is paying attention to transitional activities, managing activities, or directing activities performed by persons or machines in the classroom that facilitate the instruction taking place during reading or other instructional activities. (Example: The teacher says to the student being observed, "Debby, your group is ready to come over here, so come on over.")

Category 10: Positive Feedback. This category includes those instances in which the student being observed is paying attention to actions or words by

the teacher, other adult, or machine that praise or encourage the activities of himself or others in the classroom. (Example: The teacher says to the student being observed, "Very good, John.")

Category 11: Negative Feedback. This category includes those instances in which the student being observed is paying attention to actions by the teacher, other adult, or a machine that indicate to a person in the classroom that his answer is wrong or that discipline persons in the classroom for their actions. (Example: The teacher says, "Class, be quiet.")

Category 12: Extraneous. This category includes those instances in which the student being observed is paying attention to irrelevant or incidental comments or actions which are not codeable into any other category. (Example: The student being observed asks the teacher to sign his late slip.)

These Content categories required several special coding rules that were necessary to permit the observers to recognize the categories as discrete. These coding rules are described in detail elsewhere (Quirk, Weinberg, & Nalin, 1973), but one of them is worth noting. This rule dealt with a "carry-over effect" in which pauses in instruction (e.g., whenever the teacher was waiting for a student to answer her question) were coded as part of the Content category that was the focus of the instruction. For example, if the teacher asked the students how to pronounce a word written on the board, and was waiting for a response from the class when the stopwatch indicated that this event was to be coded, this pause would be coded as Content category 2 (Pronunciation and Word Recognition).

TRAINING OF OBSERVERS

A total of 27 observers (6 men and 21 women) were trained to use the Student Observation Scale--Reading. They ranged in age from 22 to 71 years with a median age of 36 years.

A trainer and an assistant trainer conducted three separate one-week training programs for the Student Observation Scale--Reading. This three-week period lasted from October 15 through November 3, 1972. The training programs were located in Princeton, New Jersey; Evanston, Illinois; and Berkeley, California. Each training session lasted for five days. The total time spent in training the observers during each training session was approximately 35 hours.

A reliability study was conducted on the last day of each training session. The procedure was to have the observers observe a reading class in pairs and to use a single stopwatch to synchronize their codings. These pairs of observers coded for a 20-minute observation period. Each observer was then paired with a different observer for a second observation period and still another for a third observation period. Twenty-one of the observers were paired in this manner while six of the observers completed only two observation periods of 20 minutes each.

One of the observers was not permitted to collect any classroom observation data during the study because her reliability coefficients were judged to be too low. For the remaining observers, their reliabilities, when computed by using the total codings for all of the observers with whom they were paired, were as follows: the Group of Instruction ranged from .81 to 1.0 with a median coefficient of .96; for the Content of Instruction, the reliabilities ranged

from .67 to .99 with a median coefficient of .90; for the Group-Content dimensions combined into a two-dimensional set of categories (4 Group categories x 12 Content categories), the reliabilities ranged from .62 to .99 with a median coefficient of .86. All reliabilities reported are Scott's π coefficients (Scott, 1955).

DATA COLLECTION

The classroom observation data for the Student Observation Scale--Reading were collected from October 26, 1972 until February 8, 1973. A total of 67 classes in 13 schools in 10 cities were selected to be observed. There were 41 second grade classes, 18 fourth grade classes, and eight sixth grade classes selected to be observed. Each class was supposed to be observed on nine separate days for 15 minutes of coding each day for a total of 2 1/4 hours of observation of each class. The observers were asked to distribute these nine observations so that three of them took place during the first third of the reading period, three of them took place during the middle third of the reading period, and three of them took place during the last third of the reading period.

There were nine observations completed on 63 of these 67 classes (94 percent completion rate). Four classes were not included for a variety of reasons. In one city, four classes which were observed nine times each were combined into one class since the teacher met with the same students for approximately two and one-half hours every day. One other teacher's class was not included because this teacher taught other teachers' classes as well as her own class and there were not enough observations of this teacher instructing her designated students.

DISCUSSION OF RESULTS

The results of the classroom observations of the student behavior for the 63 compensatory reading classes are summarized in Table 3. In Table 3, the percent of time spent in each category appears in the first row of each cell; this percentage was computed by dividing the total frequency of occurrence of each category across the classes by the total number of codings across all of the classes (35,292 codings). The resulting number represents the average percent of time spent in each category across all of the visits to these compensatory reading classes. In Table 3, the standard deviation across classes of the percent of time spent in each category by each class appears in parentheses in each cell. The rank order of the percent of time for each subcategory within its corresponding major category appears in the box in the lower right corner of each cell.

A total of 540 events were supposed to be coded for each class (9 visits per class x 15 minutes of coding per visit x 4 codings per minute). In fact, the number of events coded per teacher's class ranged from 504 to 720 events with a mean of 560.19 events and a standard deviation of 59.84.

In one city the teachers met privately with small groups of students in a conference room. In this city, student behavior was coded for a total of 20 minutes for each of nine visits instead of the usual 15 minutes of coding and in these eight classes the observers coded an average of 715 events per class instead of the usual 540 events.

Student Behavior During Reading Instruction

On the average, the students spent 48% of their time attending to the teacher or a group containing the teacher, 31% of their time alone, 12% of their time attending to some adult other than the teacher, and 9% of their time

Table 3

PERCENTAGE OF TIME SPENT ACROSS ALL CLASSES (N = 63) IN EACH GROUP-CONTENT CATEGORY IN TERMS OF STUDENT BEHAVIOR

Group of Instruction	Content of Instruction												
	Comp.	Pron. Wd. Rec.	Lang. Struc.	Rdg. Sil.	Sp.	Writing	List. Inst.	Non-Rdg. Inst.	Man. Inst.	Pos. Fdbk.	Neg. Fdbk.	Ex.	Totals
Teacher	5.26 (5.51) [6]	13.41 (9.55) [1]	0.52 (1.02) [29]	4.32 (4.32) [9]	6.25 (8.17) [5]	0.14 (0.65) [39]	3.10 (3.30) [11]	3.60 (6.54) [10]	8.35 (8.32) [2]	1.39 (1.48) [21]	1.04 (1.10) [23]	0.56 (0.66) [28]	47.94 (23.11) [1]
Other Adult	0.52 (1.18) [30]	2.66 (4.28) [12]	0.25 (1.09) [36]	0.63 (1.16) [27]	1.72 (3.72) [18]	0.03 (0.17) [41]	0.82 (?.42) [25]	2.18 (4.33) [16]	2.22 (2.17) [15]	0.32 (0.79) [34]	0.29 (0.49) [35]	0.25 (0.37) [37]	11.89 (15.90) [3]
Peer	0.20 (0.64) [38]	1.07 (2.01) [22]	0.01 (0.06) [45]	0.36 (0.63) [33]	0.47 (0.74) [31]	0.03 (0.19) [42]	0.02 (0.07) [43]	0.76 (1.34) [26]	0.92 (0.90) [24]			5.16 (4.06) [8]	8.99 (5.77) [4]
Alone	1.51 (2.26) [19]	2.43 (4.30) [13]	0.39 (1.29) [32]	7.99 (8.01) [3]	5.22 (5.87) [7]	1.46 (3.00) [20]	0.06 (0.30) [40]	2.23 (3.65) [14]	1.92 (1.96) [17]	0.04 (0.07) [44]	0.01 (0.0_) [46]	7.95 (4.09) [4]	31.19 (21.69) [2]
Totals	7.48 (6.38) [7]	19.57 (10.45) [1]	1.16 (2.29) [12]	13.30 (8.10) [5]	13.65 (11.30) [3]	1.67 (3.28) [10]	4.00 (4.17) [8]	8.77 (10.41) [6]	13.41 (4.49) [4]	1.73 (1.80) [9]	1.34 (1.14) [11]	13.91 (6.93) [2]	

The weighted percent of time spent in each category across classes appears in each cell. The standard deviation across classes of the percent of time spent in each category by each class appears in parentheses in each cell. The rank order of occurrence of each category appears in the box in the lower-right corner of each cell.

attending to other students. Thus, the students were paying attention either to the teacher or to some other adult for 60% of their time. The fact that the students were not paying attention to any adult or any other student for almost one-third of their time is notable in that it indicated that the students exercised considerable control over their own thoughts and activities for a significant amount of the time.

In terms of the Content of Instruction, the students spent the largest amount of their time in Pronunciation and Word Recognition activities (20%). The students spent 14% of their time in Extraneous activities, 14% of their time in Spelling activities, 13% of their time attending to Management Instruction activities, and 13% of their time Reading Silently. The students spent 9% of their time in instructional activities which were not related to reading and 7% of their time in Comprehension activities. The students spent 4% or less of their time in the remaining Content categories.

The students spent 61% of their time in activities which can be considered directly related to instruction in reading: Comprehension, Pronunciation and Word Recognition, Language Structure, Reading Silently, Spelling, Writing, and Listening Instruction.

The students evenly distributed their time in attending to Positive Feedback (1.7%) and Negative Feedback (1.3%).

When the Group-Content activities of the students were combined into two-dimensional categories, the students spent at least 3% of their time in each of the 11 categories summarized in Table 4. These 11 categories represented 71% of the students' time. With respect to Group of Instruction for these 11 categories, the students distributed these activities by attending to the teacher

Table 4

GROUP-CONTENT CATEGORIES OF STUDENT BEHAVIOR

THAT OCCURRED AT LEAST 3% OF THE TIME

Rank Order	Category	Percent of Time
1	Teacher: Pronunciation and Word Recognition	13.41
2	Teacher: Management Instruction	8.35
3	Alone: Reading Silently	7.99
4	Alone: Extraneous	7.95
5	Teacher: Spelling	6.25
6	Teacher: Comprehension	5.26
7	Alone: Spelling	5.22
8	Peer: Extraneous	5.16
9	Teacher: Reading Silently	4.32
10	Teacher: Non-Reading Instruction	3.60
11	Teacher: Listening Instruction	3.10
	Total	70.61

Summary of Group Dimension for These Eleven Categories		Summary of Content Dimension for These Eleven Categories	
Teacher	44.29%	Pronunciation & Word Recognition	13.41%
Alone	21.16%	Comprehension	5.26%
Peer	5.16%	Reading Silently	12.31%
		Spelling	11.47%
		Listening Instruction	3.10%
		Non-Reading Instruction	3.60%
		Management Instruction	8.35%
		Extraneous	13.11%

for 44% of the time, by being alone for 21% of the time, and by attending to other students for 5% of the time. In terms of the Content of instruction for these 11 categories, the students spent 13% of the time in Pronunciation and Word Recognition activities, 13% of the time in Extraneous activities, 12% of the time Reading Silently, and 11% of the time in Spelling activities. Furthermore, the students spent 8% of the time in Management Instruction activities, 5% of the time in Comprehension activities, 4% of the time in Non-Reading Instruction activities, and 3% of the time in Listening Instruction activities.

SUMMARY AND CONCLUSIONS

The description of student behavior during compensatory reading instruction is a necessary first step in the systematic study of the relationship between what the students do during reading instruction and the subsequent development of the students in reading ability. How much time should teachers and students spend in activities involving Pronunciation and Word Recognition? Do those classes in which students spend more time in Comprehension activities improve more in reading ability? What is the relationship between the amount of time spent in Spelling activities and the students' improvement in reading scores? Questions such as these can only be answered by relating student behavior during reading instruction to student residual gain scores. This line of research may prove fertile in generating hypotheses about the relationship between student behavior and the students' subsequent development in reading ability. This research is currently being pursued at Educational Testing Service. The results are not yet available.

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